

# Early Hemoperfusion for Cytokine Removal May Contribute to Prevention of Intubation in Patients Infected with COVID-19

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## Keywords

Hemoperfusion · Cytokine · Continuous renal replacement therapy · COVID-19 · Acute respiratory distress syndrome

## Abstract

Hemoperfusion (HP) was helpful to prevent the development and progression of acute respiratory distress syndrome (ARDS), acute kidney injury (AKI), liver failure, and septic shock by removing cytokines and other inflammatory mediators and ultimately preventing progression toward multiple organ failure. A 54-year-old man diagnosed with COVID-19 was hospitalized in the intensive care unit. The patient's O<sub>2</sub> saturation was 80% using an oxygen mask, which was gradually declining. After 4 sessions of HP/continuous renal replacement therapies (CRRT), O<sub>2</sub> saturation reached to 95%, and the patient was transferred to the general ward. Performing HP/CRRT at the early stages of ARDS can obviate the need for intubating patients with COVID-19. Punctual and early use of HP and CRRT in the treatment of ARDS in

patients with COVID-19 prevented the progression of ARDS and patient intubation, reduced respiratory distress and the patient's dependence on oxygen, prevented other complications such as AKI and septic shock in the patient, and reduced mortality and hospital length of stay.

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## Introduction

As with previous viral outbreaks, a percentage of patients with COVID-19 require intensive care and complex management [1, 2]. Current strategies for coronavirus disease 2019 (COVID-19) include extracorporeal membrane oxygenation (ECMO) in the most severe cases of acute respiratory distress syndrome (ARDS) [3], as well as high-flow nasal oxygen (HFNO) and mechanical ventilation for intubated patients [4]. Although these measures are effective in most cases, several COVID-19 patients may present a fatal outcome. Reports from around